Practice Problems for Exponents, Roots, and Logarithms

from www.topmath.info

1 A number, t, has 14 subtracted from it to produce a second number. The cube root of the second number is 0.3. What is t?

2 A number, w, has 12 subtracted from it to produce a second number. The fifth root of the second number is 0.3. What is w?

3 What is the square root of 144?

4 What is the cube root of 1,000?

5 What is the cube root of 21,952?

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6 The logarithm base 5 of 124 is closest to what integer?

7 (T/F): If x^2 > y^2, then x > y.

8 Suppose rx^-1 = 7. What is r?

9 What is 29 squared?

10 What is 15 squared?

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11 What is 40 cubed?

12 What can x be, if x^3 + 512 = 0?

13 A number, q, has 21 added to it to produce a second number. The cube root of the second number is -0.2. What is q?

14 A number, q, has 15 added to it to produce a second number. The fifth root of the second number is -0.2. What is q?

15 A number, q, has 19 added to it to produce a second number. The cube root of the second number is 0.2. What is q?

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1 ANSWER: 14.027. EXPLANATION: The second number is 0.3 cubed, or 0.027. This is 14 less than t, so we add to get the answer.

2 ANSWER: 12.00243. EXPLANATION: The second number is 0.3 to the fifth power, or 0.00243. This is 12 less than w, so we add to get the answer.

3 ANSWER: 4

4 ANSWER: 729

5 ANSWER: 9261

6 ANSWER: 3. EXPLANATION: Note that 5^3 = 125, and no other integer power of 5 is anywhere near as close to 124.

7 ANSWER: False. EXPLANATION: It is possible that x is negative and y is positive.

8 ANSWER: 7x^1. EXPLANATION: The expression x^-1 means 1/(x^1). If we multiply this by x^1, the two cancel each other, and we need only multiply by 7 to equal the number on the right side of the equation.

9 ANSWER: 841

10 ANSWER: 225

11 ANSWER: 64,000

12 ANSWER: -8. EXPLANATION: The number whose cube is 512 is 8. Because x^3 must be negative, x must also be negative.

13 ANSWER: -21.008. EXPLANATION: The second number is -0.2 cubed, or -0.008. This is 21 greater than q, so we subtract to get the answer.

14 ANSWER: -15.00032. EXPLANATION: The second number is -0.2 to the fifth power, or -0.00032. This is 15 greater than q, so we subtract to get the answer.

15 ANSWER: -18.992. EXPLANATION: The second number is 0.2 cubed, or 0.008. This is 19 greater than q, so we subtract to get the answer.